

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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P005020-PCT

IMPORTANT NOTIFICATION

International application No.
PCT/BR 02/00159

International filing date (day/month/year)
21.11.2002

Priority date (day/month/year)
21.11.2002

Applicant

DOLCE PERRI, Andrea Luigi et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

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PATENT COOPERATION TREATY



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P005020-PCT		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/BR 02/00159	International filing date (day/month/year) 21.11.2002	Priority date (day/month/year) 21.11.2002	
International Patent Classification (IPC) or both national classification and IPC G08B13/14			
Applicant DOLCE PERRI, Andrea Luigi et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 6 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 21.06.2004		Date of completion of this report 08.03.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Dascalu, A. Telephone No. +49 89 2399-7967 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/BR 02/00159**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-13 as originally filed

Claims, Numbers

1-35 received on 18.02.2005 with letter of 18.02.2005

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/BR 02/00159

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-35
	No: Claims	
Inventive step (IS)	Yes: Claims	1-35
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-35
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

- D1: US-A-5 402 104 (LAROSA LAZARO) 28 March 1995 (1995-03-28)
D2: US-A-4 792 796 (WATERHOUSE PAUL I ET AL) 20 December 1988 (1988-12-20)

1. Novelty and inventive step of claim 1

The examiner is of the opinion that claim 1 of the application appears to meet the requirements of Art. 33(2) and (3) PCT, being new and involving an inventive step for the following reasons:

The current application relates to an electronic distancing alert system capable to generate an alarm whenever a determined preestablished distance between the transmitting and the receiving unit that integrate it becomes longer than the maximum limit programmed.

The problem to be solved is seen as to provide an electronic distancing alert system with a energy-saving function mode.

The closest of the available prior art is considered to be represented by the document D1 which discloses an electronic distancing alert system from which the subject-matter of claim 1 differs in that the transmitting unit and the receiving unit being selectively and phase-synchronously switched on by a first control circuit which controls the condition of a PLL transmitter and a second control circuit which controls the condition of a PLL receptor for a transmitting period, and turned inoperable by the first control circuit and the second control circuit during the remaining period, the receiving unit being turned on prior to the transmitting and turned off after the transmitting unit during the transmitting period, such that, the transmission of a plurality of identifying codes is transmitted by the transmitting unit during the transmitting period.

The subject-matter of claim 1 is therefore new, Art. 33(2) PCT.

The technical consequence of this difference is that the system will work only in a specific time window and provide synchronism between the transmitting unit and the receiving unit and thus will have a longer battery life.

Document D2 discloses an electronic alarm apparatus comprising a monitor, a transmitter and a code which is transmitted periodically and where the transmitter remains operable all the time.

Further available prior art documents are technically more remote than D1.

It is concluded that given the available prior art, the person skilled in the art would not be expected to arrive at the subject matter of claim 1 of the application without having made an inventive step, Art. 33(3) PCT.

2. Novelty and inventive step of claims 2-29

Claims 2 to 29 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step, Art. 33(2,3) PCT.

3. Novelty and inventive step of claim 30

The examiner is of the opinion that claim 30 of the application appears also to meet the requirements of Art. 33(2) and (3) PCT, being new and involving an inventive step for the following reasons:

Document D2, which is considered to represent the most relevant state of the art, discloses a logic timing circuit of the monitor control logic circuit that energizes the receiver, from which the subject-matter of claim 30 differs in that the phase synchronism comprises the step of transmitting a signal obtained at the output of the decoder to actuate a memory circuit and synchronizing the receiving unit to be operable synchronizing to the transmitting unit, the transmitting unit functioning during

a 15 ms period per each second and the receiving unit functioning during 10 ms period per each second.

The subject-matter of claim 30 is therefore new, Art. 33(2) PCT.

As in claim 1, the problem to be solved by the present invention may be regarded as to provide a battery saving electronic distancing alert system. According to D2, here is disclosed a logic timing circuit which does not control the operations of both transmitter and receiver unit, the transmitter unit remains operable. D1 was discussed in item 1, the other documents of the available prior art are not relevant for this process.

There is no hint in the available prior art for the skilled person to solve this problem in the way of present invention. Thus, the solution proposed in claim 30 can be considered as involving an inventive step relates to a process of generating phase synchronism, Art. 33(3) PCT.

4. Novelty and inventive step of claims 30-35

Claims 30-35 are dependent on claim 30 and as such also meet the requirements of the PCT with respect to novelty and inventive step, Art. 33(2,3) PCT.

5. Industrial applicability

Claims 1-35 appear to meet the requirements of the PCT with respect to industrial applicability, Art. 33(4) PCT.

CLAIMS

1. An electronic distancing alert system comprising:

(i) a transmitting unit (10) positioned on a first body and comprising an encoder (13) associated with a signal modulating and transmitting circuit (14); and

(ii) a receiving unit (20) positioned on a second body and comprising a signal receiving and demodulating circuit (24) associated with a decoder (23);

the encoder (13) and the signal modulating and transmitting circuit (14) generating and transmitting an identifying code associated with a carrier wave, the identifying code being received by the receiving and demodulating circuit (24) and recognized by the decoder (23), which actuates a triggering circuit (27) upon distancing between the first body and the second body and absence of reception of the identifying code, the electronic distancing alert system being characterized in that the encoder (13) generates a plurality of identifying codes combinable with a plurality of different generation frequencies, which are transmitted and received in different fractions of time and in phase synchronism between the transmitting unit (10) and the receiving unit (20).

2. A system according to claim 1, characterized in that the encoder (13) comprises an integrated circuit (C13) provided with means of generating serial identifying codes.

3. A system according to claim 2, characterized in that the means of generating identifying codes comprise multiple combinations of enabled logic ports.

4. A system according to claim 3, characterized in that, at each combination of enabled logic ports, a different serial identifying code is generated at a determined frequency.

5. A system according to claim 1, characterized in that the signal modulating and transmitting circuit (14) comprises an integrated circuit (C14) associated with a crystal oscillator (C100).

6. A system according to claim 5, characterized in that the signal modulating and transmitting circuit (14) modulates the identifying code to the

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carrier wave and transmits it at a free frequency.

7. A system according to claim 6, characterized in that the carrier wave is transmitted at a frequency of 434MHz.

8. A system according to claim 7, characterized in that the carrier
5 wave is transmitted by means of radio frequency.

9. A system according to claim 1, characterized in that the transmitting unit (10) comprises a first control circuit (12) associated with a power supply (11).

10. A system according to claim 9, characterized in that the control
10 circuit (12) actuates the signal modulating and transmitting circuit (14), which transmits the identifying code in a fraction of time corresponding to 15ms each 1 second.

11. A system according to claim 9, characterized in that the power supply (11) is a battery with nominal voltage of 3V.

12. A system according to claim 1, characterized in that the receiving
15 and demodulating circuit (24) comprises an integrated circuit (CI24) operating at the same frequency as the modulating and transmitting circuit (14).

13. A system according to claim 12, characterized in that the receiving and demodulating circuit (24) receives data transmitted by the transmitting unit (10) and filters the identifying code from the carrier wave.
20

14. A system according to claim 1, characterized in that the decoder (23) comprises an integrated circuit (CI23) compatible with the integrated circuit (CI13) of the encoder (13) of the transmitting unit (10).

15. A system according to claim 14, characterized in that the decoder (23) identifies the presence and recognizes the identifying code transmitted by the transmitting unit (10), generating an output signal of positive logic level.
25

16. A system according to claim 14, characterized in that the decoder (23) identifies the absence and non-recognition of the identifying code transmitted by the transmitting unit (10), generating an output signal of null logic level.
30

17. A system according to claim 15 or 16, characterized in that the

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signal obtained at the output of the decoder (23) is transmitted to a comparator (26), which is associated with the alert triggering circuit (27).

18. A system according to claim 17, characterized in that the comparator (26) comprises a separation means between the first control voltage
5 (ΔV) and a second varying voltage.

19. A system according to claim 18, characterized in that the comparison means corresponds to an electronic circuit (26) comprising an operational amplifier (A26) associated with a first resistor (R16) provided with an average resistance value, to a second resistor (R26) provided with a resistance value higher than that of the first resistor (R16), to a third resistor (R36)
10 provided with a resistance value calculated from the control voltage (ΔV), to a capacitor (C26) and to a diode (D26).

20. A system according to claim 19, characterized in that the positive signal at the output of the decoder (23) charges the capacitor (C26), and the
15 second varying voltage received by the comparator (26) is higher than the control voltage (ΔV).

21. A system according to claim 20, characterized in that the capacitor (C26) is charged by the first resistor (16) by means of a first potential difference generated by the decoder (23).

22. A system according to claim 19, characterized in that the null signal at the output of the decoder (23) discharges the capacitor (C26), and the second varying voltage received by the comparator (26) is lower than the control voltage (ΔV).

23. A system according to claim 22, characterized in that the capacitor (C26) is discharged by means of the resistor (R26).
25

24. A systems according to claim 23, characterized in that the comparator (26) actuates the alert triggering circuit (27) when the second varying voltage is lower than the control voltage (ΔV).

25. A system according to claim 1, characterized in that the receiving
30 unit (20) comprises a second control circuit (22) associated with a power supply (21).

26. A system according to claim 25, characterized in that the control

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circuit (22) actuates the signal receiving and demodulating circuit (24), which receives the identifying code in a fraction of time corresponding to 10ms each 1 second.

27. A system according to claim 25, characterized in that the power
5 supply (21) is a battery with nominal voltage of 12V.

28. A system according to claim 1, characterized in that the receiving unit (20) comprises a memory circuit (25) associated with the decoder (23) by means of a key (CH1) and associated with the control circuit (22).

29. A system according to claim 28, characterized in that the actuation
10 of the memory circuit (25) provides the phase synchronism between the transmitting unit (10) and the receiving unit (20).

30. A process of generating phase synchronism between a transmitting unit (10) and a receiving unit (20) of an electronic distancing alert system as defined in claims 1 - 28, the process being characterized in that it
15 comprises the following steps:

- A) positioning the transmitting unit (10) and the receiving unit (20) connected and close to each other;
- B) closing a key (CH1) for a determined period of time;
- C) actuating a memory circuit (25);
- 20 D) opening the key (CH1).

31. A process according to claim 30, characterized in that, in step B, the closing of the key (CH1) is kept for a period of time substantially equal to 3 seconds.

32. A process according to claim 31, characterized in that, in the step
25 of closing the key (CH1), at least one identifying code transmitted by the transmitting unit (10) is received by the receiving unit (20) by means of the signal receiving and demodulating circuit (24) and recognized by a decoder (23), which generates a positive output signal.

33. A process according to claim 32, characterized in that the positive signal generated by the decoder (23) in the step B initiates the step C, actuating the memory circuit (25).

34. A process according to claim 33, characterized in that, during the

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step C, the memory circuit (25), stores the positive signal generated by the decoder (23) and actuates a second control circuit (22).

35. A process according to claim 34, characterized in that the second control circuit (22) operates in synchronism with a first control circuit (12).

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